

REMARKS

The present application is a Rule 114 Request for Continued Examination (RCE) of parent application Serial No. 10/045,490, filed January 11, 2002.

In an amendment after final filed by facsimile on December 4, 2003, applicants amended independent claims 1 and 13 to further patentably distinguish from the prior art of record. In an Advisory Action dated December 15, 2003, the Examiner advised that the December 4 amendment after final would not be entered because the amendments raise new issues requiring further search and consideration. The present RCE has been filed to obtain entry of the December 4 amendment after final.

Applicants present this preliminary amendment in order to more clearly delineate the inventive subject matter of independent claims 10 and 13 to further patentably distinguish from the prior art of record.

With reference to Figs. 1-13, a bush cutting machine 11 according to the present invention embodied in independent claim 1 has an operation rod 24 having a front end and a rear end. A cutter blade 22 is mounted to the front end of the operation rod 24 for undergoing rotation. A prime mover (e.g., engine) 21 is mounted to the rear end of the operation rod 24 for rotationally driving the cutter blade 22. A throttle lever 107 is pivotally mounted with respect to the

operation rod 24 for controlling an opening degree of a throttle valve of the prime mover 21 to adjust a rotational speed of the cutter blade 22. A brake unit 65 is provided for stopping rotation of the cutter blade 22 in a braking condition of the brake unit 65. A main wire 56b has a first end portion connected to the throttle lever 107 so that pivotal movement of the throttle lever 107 pulls the main 56b wire in a pulling direction from a standby condition (Fig. 9) to an operative condition (Fig. 12). A throttle wire 54b has a first end portion connected to the throttle valve of the prime mover 21 so that when the main wire 56b is pulled in the pulling direction the throttle wire 54b undergoes movement in the pulling direction from a standby condition (Fig. 9) to an operative condition (Fig. 12) to control the opening degree of the throttle valve. A brake wire 87b has a first end portion connected to the brake unit 65 so that when the main wire 56b is pulled in the pulling direction the brake wire 87b undergoes movement in the pulling direction from a standby condition (Fig. 9) in which the brake unit 65 is in the braking condition to an operative condition (Fig. 12) in which the brake unit 65 is released from the braking condition to allow rotation of the cutter blade 22. A link mechanism is actuated by operation of the throttle lever 107 to adjust the degree of opening of the throttle valve of the prime mover 21 and to release the brake unit 65 from the braking condition

when each of the main wire 56b, the throttle wire 54b and the brake wire 87b is in the operative condition. The link mechanism has a generally U-shaped relay member 92 having a first lug portion 92a connected to a second end portion of the main wire 56b and a second lug portion 92b connected to a second end portion of the throttle wire 54b and a second end portion of the brake wire 87b. The first and second lug portions 92a, 92b form opposite and confronting leg portions of the U-shaped relay member 92. The main wire 56b, throttle wire 54b and brake wire 87b are biased to the standby condition by biasing members 97 and 114.

By the foregoing simplified construction of the bush cutting machine according to the present invention, control of an opening degree of the throttle valve of the prime mover to adjust the rotational speed of the cutter blade and the application of brakes to stop rotation of the cutter blade are accomplished with high efficiency and a minimum number of parts as compared to conventional bush cutting machines. This is in contrast to conventional bush cutting machines in which an operator is required to perform respective operations of the throttle lever and the brake lever in a timed fashion during a bush cutting operation. For example, the operator of a conventional bush cutting machine must operate the throttle lever in such a manner so as to gradually increase the rotational speed of the cutter blade while gripping the brake

lever to gradually release the brakes from the cutter blade, thereby requiring high-skill operation of the levers. The simplified construction of the bush cutting machine according to the present invention overcomes this problem in the conventional art.

The prior art of record does not disclose or suggest the subject matter recited in amended independent claims 1 and 13, dependent claims 5, 6, 11, 12, 16-20, and new claims 21-24.

Amended independent claim 1 is directed to a bush cutting machine and requires an operation rod having a front end and a rear end, a cutter blade mounted to the front end of the operation rod for undergoing rotation, a prime mover mounted to the rear end of the operation rod for rotationally driving the cutter blade, a throttle lever pivotally mounted with respect to the operation rod for controlling an opening degree of a throttle valve of the prime mover to adjust a rotational speed of the cutter blade, a main wire having a first end connected to the throttle lever so that pivotal movement of the throttle lever pulls the main wire in a pulling direction from a standby condition to an operative condition, a throttle wire having a first end connected to the throttle valve of the prime mover so that when the main wire is pulled in the pulling direction the throttle wire undergoes movement in the pulling direction from a standby condition to

an operative condition to control the opening degree of the throttle valve, a brake unit for stopping rotation of the cutter blade in a braking condition of the brake unit, a brake wire having a first end connected to the brake unit so that when the main wire is pulled in the pulling direction the brake wire undergoes movement in the pulling direction from a standby condition in which the brake unit is in the braking condition to an operative condition in which the brake unit is released from the braking condition to allow rotation of the cutter blade, and a link mechanism actuated by operation of the throttle lever to adjust the degree of opening of the throttle valve of the prime mover and to release the brake unit from the braking condition when each of the main wire, the throttle wire and the brake wire is in the operative condition, the link mechanism having a generally U-shaped relay member having a first lug portion connected to a second end of the main wire and a second lug portion connected to a second end of the throttle wire and a second end of the brake wire, the first and second lug portions forming opposite and confronting leg portions of the U-shaped relay member. Amended claim 1 further requires biasing means for biasing each of the main wire, the throttle wire, and the brake wire to the corresponding standby condition.

Thus amended independent claim 1 requires a main wire having a first end connected to the throttle lever so that pivotal movement of the throttle lever pulls the main wire in a pulling direction from a standby condition to an operative condition, a throttle wire having a first end connected to the throttle valve of the prime mover so that when the main wire is pulled in the pulling direction the throttle wire undergoes movement in the pulling direction from a standby condition to an operative condition to control the opening degree of the throttle valve, and a brake wire having a first end connected to the brake unit so that when the main wire is pulled in the pulling direction the brake wire undergoes movement in the pulling direction from a standby condition in which the brake unit is in the braking condition to an operative condition in which the brake unit is released from the braking condition to allow rotation of the cutter blade. Stated otherwise, amended claim 1 requires that each of the main wire, throttle wire and brake wire are pulled in the same pulling direction when placed in an operative condition from a standby condition. No corresponding structural and functional combination is disclosed or suggested by the prior art of record.

For example, Nagashima '547 discloses a hand-lever device for a trimmer (Fig. 8). An operation stroke amplifying mechanism 40 includes a relay member 41 (i.e., a lever) having

leg portions 41A-41C to which a throttle wire 17, a main wire 18 and a brake wire 68 are respectively connected. The throttle wire 17 is operatively pulled by a main lever 30 via the operation stroke amplifying mechanism 40 and a pulley or direction changing member 45 (col. 7, lines 34-37). When an operational portion 31 of the main lever 30 is rotated in a direction toward a grip portion 11, the arms 41B, 41C of the lever 41 are pulled backwardly via the main wire 18 so as to rotate the lever 41 in a clockwise direction in the plan view of the figure shown in Fig. 8. This causes the throttle cable 17 to be pulled out in a forward direction by the arm 41A of the lever 41 and the wire to be pulled out in a backward direction.

Thus when the throttle wire 17, the main wire 18, and the brake wire 68 in Nagashima '547 are placed in an operative condition from a standby condition, the throttle wire 17 is pulled in a forward direction while the main wire 18 and the brake wire 68 are pulled in a backward direction as viewed in Fig. 8. Stated otherwise, each of the main wire 18, throttle wire 17, and brake wire 68 are not pulled in the same pulling direction when placed in an operative condition from a standby condition, as required by amended independent claim 1.

Moreover, independent claim 1 requires a link mechanism having a generally U-shaped relay member having a first lug portion connected to a second end of the main wire

and a second lug portion connected to a second end of the throttle wire and a second end of the brake wire, the first and second lug portions forming opposite and confronting leg portions of the U-shaped relay member. As recognized by the Examiner in the October 1, 2003 final Office Action, the relay member 41 of Nagashima '547 is not generally U-shaped, as required by independent claim 1. Furthermore, the leg portions 41A-41C of the relay member 41 do not form opposite and confronting leg portions of a U-shaped relay member, as required by independent claim 1. Stated otherwise, in Nagashima '547, the relay member is generally Y-shaped, not U-shaped. Furthermore, the leg portions 41A-41C of the relay member 41 in Nagashima '547 lie on the same plane and, therefore, do not form opposite and confronting leg portions of a U-shaped relay member.

The combination of Nagashima '547 and Tabata and the combination of Nagashima '547 and Wen proposed by the Examiner in the October 1 final Office Action also does not disclose or suggest the subject matter recited in amended independent claim 1 as set forth in detail on pages 18-19 and 19-28, respectively, of the December 4 amendment after final.

Amended independent claim 13 similarly distinguishes from Nagashima '547 either alone or in combination with Tabata or Wen. More specifically, amended independent claim 13 requires a first wire having a first end connected to the

throttle lever and a second end connected to the first portion of the relay member so that pivotal movement of the throttle lever pulls the first wire in a pulling direction from a standby condition to an operative condition, a second wire having a first end connected to the throttle valve of the prime mover and a second end connected to the second portion of the relay member so that when the first wire is pulled in the pulling direction the second wire undergoes movement in the pulling direction from a standby condition to an operative condition to control the opening degree of the throttle valve, and a third wire having a first end connected to the brake unit and a second end connected to the second portion of the relay member so that when the first wire is pulled in the pulling direction the third wire undergoes movement in the pulling direction from a standby condition in which the brake unit is in the braking condition to an operative condition in which the brake unit is released from the braking condition to allow rotation of the cutter blade. Thus, amended claim 13 also requires that the first wire, second wire and third wire are pulled in the same pulling direction when placed in an operative condition from a standby condition. No corresponding structural and functional combination is disclosed or suggested by the prior art of record as set forth above for amended independent claim 1.

Moreover, independent claim 13 further requires a

generally U-shaped relay member having first and second portions defining confronting leg portions of the U-shaped relay member. No corresponding structure is disclosed or described by the prior art of record as set forth above for independent claim 1.

Claims 5, 6, 11, 12 and 16-20 depend on and contain all of the limitations of amended independent claims 1 and 13, respectively, and therefore, distinguish from the references at least in the same manner as claims 1 and 13.

Applicants respectfully submit that the prior art of record also does not disclose or suggest the subject matter recited in newly added claims 21-24.

Claims 21 and 22 depend on and contain all of the limitations of amended independent claims 1 and 13, respectively, and therefore, distinguish from the references at least in the same manner as claims 1 and 13.

Moreover, there is a separate ground for patentability of new dependent claims 21 and 22 which include the additional limitation that the bush cutting machine further comprises biasing means for biasing each of the first wire or main wire, the second wire or throttle wire, and the third wire or brake wire to the corresponding standby condition. No corresponding structure and function are disclosed or suggested by the prior art of record.

New independent claim 23 is directed to a bush

cutting machine and requires a first wire having a first end connected to the throttle lever and a second end connected to the first portion of the relay member so that pivotal movement of the throttle lever pulls the first wire in a pulling direction from a standby condition to an operative condition, a second wire having a first end connected to the throttle valve of the prime mover and a second end connected to the second portion of the relay member so that when the first wire is pulled in the pulling direction the second wire undergoes movement in the pulling direction from a standby condition to an operative condition to control the opening degree of the throttle valve, and a third wire having a first end connected to the brake unit and a second end connected to the second portion of the relay member so that when the first wire is pulled in the pulling direction the third wire undergoes movement in the pulling direction from a standby condition in which the brake unit is in the braking condition to an operative condition in which the brake unit is released from the braking condition to allow rotation of the cutter blade. No corresponding structural and functional combination is disclosed or suggested by the prior art of record.

Claim 24 depends on and contains all of the limitations of independent claim 23 and, therefore, distinguishes from the references at least in the same manner as claim 23.

In view of the foregoing amendments and discussion,
the application is now believed to be in condition for
allowance. Accordingly, favorable reconsideration and
allowance of the claims are most respectfully requested.

Respectfully submitted,

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January 2, 2004

Date